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Signed: 何兰

Name in Print: He Lan (Miss), BA (Translation Studies), MCTA

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[71] Applicant	Zhao Shanrun	Bureau
Address	054700 No.10, Shuncheng Road, Wei County, Hebei Province	// A01K / 10,53 : 00
[72] Inventor	Zhao Shanrun	Total no. of Instruction pages: Total no. of diagram pages:

[54] Invention Name An Insecticide Compound

[57] Summary

A component insecticide, composed of five effective components, cypermethrin, phoxim, 1605, emulsifier and synergist, compounded in the solvent of dimethyl benzene in certain proportions and using certain methods. The effects of this insecticide are contact action, stomach action, knock-down action and fumigating action on pests. These actions have the advantage of killing pests extensively and quickly. This also avoids the possibility that pests will be resistant to this insecticide, so it is a new broad-spectrum, effective and cheap component insecticide with low toxicity to human beings and animals. Its method of use is also very simple: add water at a ration 1000:1 to the insecticide. It is suitable for field application or seed dressing. It can effectively kill such insects as boll worm, red spider, thrip, planthopper, stem borer, green stink bug, leaf insects, and aphid.

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Rights Requirements

1. A component insecticide: the components consist of cypermethrin 1-7%, phoxim 3-9%, 1605 10-25%, emulsifier 7-15%, synergist SV 4-10% and solvent the remainder.
2. According to Rights Requirement 1, emulsifier must be one of 0221, 0201 or 0199

Instructions

An Insecticide Compound

This invention is a pesticide.

Pesticide is an effective product to kill pests, but long-term use of one single pesticide will result in the production of pests' resistance and at the same time weaken its effect on killing pests. In order to protect the crops from destruction by pests and get rid of their resistance to pesticide, we will have to constantly develop new pesticides to deal with them. However, doing this often needs enormous financial and material resources, and the result is always that the speed of a new insecticide's birth can't keep pace with the speed of insect occurrence. If we can compose and compound a new broad-spectrum and effective pesticide by making use of existing pesticide and technology, we find it to be a good approach to increase new strains of pesticide.

The purpose of our invention is to compound a new component solvent at the basis of existing pesticide, and with proper emulsifier and synergist, to make this component solvent become a brand new broad-spectrum, effective and cheap component insecticide with low toxicity to men and animals.

The invention is realized like this: a kind of component insecticide with cypermethrin of 1-7%, phoxim of 3-9%, 1605 of 10-25%, emulsifier of 7-15%, synergist SV of 4-10% and solvent the remainder. Of these, emulsifier must be one of 0221, 0201 or 0199.

Cypermethrin is a broad-spectrum insecticide having stomach action, contact action, and good knock-down action to pests, but its toxicity to human beings and animals is very weak. The sole use of cypermethrin will easily lead to pests' resistance and reduce the efficacy of insecticide.

Phoxim has the broad spectrum of killing pests, and photochemical knock-down action, also weak toxicity to human beings and animals.

1605 is an insecticide with stomach action and fumigating action. But it is considerably poisonous to human beings and animals.

Combining these three pesticides can produce a new component insecticide, which will reinforce each pesticide's effect. Each pesticide has its contact and stomach action, after combining together, these two actions will also be strengthened. Through such combination, the inadequacy problem of one single pesticide also can be solved. Cypermethrin is a pyrethrin insecticide; phoxim and 1605 belong to the organophosphorous pesticides. Cypermethrin is effective to prevent pests producing resistance to organic phosphorus, and organophosphorous compounds have the same effect on preventing pests producing resistance to cypermethrin. In this way, component insecticide will avoid pests' production of medicine resistance caused by single use of one component. In addition, if these three pesticides function separately, their pest-killing destruction can't be comprehensive. However, in component pesticide each component

keeps its own destructive ability, that is to say, component pesticide concentrates phoxim pesticide's photochemical knock-down action, cypermethrin's fine knock-down action and 1605's fumigating action together. In addition to reinforce contact and stomach action on pests, the new component insecticide increases three other actions: knock-down action, photochemical knock-down action, and fumigating action. Its ability to kill pests is much stronger than a single pesticide. It is also capable of covering wider ranges, more powerful in its poisonous effect and can kill more different pests effectively. Component insecticide has a greater broad-spectrum effect in killing insects than single pesticide.

In the new component insecticide, phoxim and cypermethrin's toxicity is low to mammals. Only 1605 pesticide can cause severe toxicity to men and animals. On the condition of achieving an equal effect on killing pests, there is much less 1605 in this component insecticide than in solely 1605 pesticide, so the toxicity of component insecticide is greatly reduced compared to the 1605-only pesticide.

Due to component insecticide's wide-range destruction ability and high efficiency, the quantity of each effective component part in use is decreased, bringing a reduction in cost.

The method of producing this component insecticide is as follows. First dissolve cypermethrin, phoxim, and 1605 pesticide separately by solvent, then mix these three solutions in certain proportion, add suitable emulsifier and synergist and stir the mixture homogeneously before the component insecticide is produced.

The solvent used is dimethyl benzene, which has the ability to dissolve cypermethrin, phoxim, and 1605 immediately, and it can be used very conveniently and safely for its high flash point.

The requirements for the solvent: 1. good dispersing function, 2. good emulsifying stability. In accordance with the above requirements, this invention has chosen such emulsifiers as 0221, 0201 and 0199. (Produced by Ningyang Insecticide Factory of Shandong Province)

The invented component insecticide can give free rein to each component's advantage and improve its comprehensive pest-killing ability. In order to make further improvements in such ability, synergist SV is added in the component insecticide. (Brand Qindao, produced by Qingdao Insecticide Factory)

By making use of cypermethrin, phoxim, and 1605 pesticides, emulsifier, synergist, and adopting the above-mentioned methods, we have invented this new component insecticide; broad-spectrum, effective, with low toxicity and cost. Adding water at 1000 parts to one of insecticide to dilute it, it can be used for field application or seed dressing. This has the effect of killing such pests as boll worm, red spider, thrip, planthopper, stem borer, green stink bug, leaf insects, and aphid. The following are the invention's operating examples:

Example 1

A: Take 4 weight cypermethrin emulsifiable formulations of 10%, add 4 weight dimethyl benzene into it and stir the mixture homogeneously, waiting to be used.

B: Take 6 weight phoxim emulsifiable formulations of 50%, add 5 weight dimethyl benzene into it and stir the mixture homogeneously, waiting to be used.

C: Take 18 weight 1605 emulsifiable formulation of 50%, add 20 weight dimethyl benzene into it and stir the mixture homogeneously, waiting to be used.

D: Take 11 weight emulsifier 0221, add 7 weight synergist SV into it, then add 24 weight dimethyl benzene and stir the mixture homogeneously, waiting to be used.

E: Put the emulsion formulation D into emulsion A, stir the mixture homogeneously, waiting to be used.

F: Mix emulsion B with emulsion C, stir the mixture homogeneously, waiting to be used.

G: Mix emulsion E with emulsion F, stir the mixture homogeneously. This will result in the creation of the component insecticide: broad in spectrum, effective with low toxicity, low in price and easy to use.

If one dilutes the component insecticide with water 1000 times and then spread it onto the fields, the component insecticide can effectively kill the field insects.

Table 1 shows the single use of cypermethrin, phoxim, and 1605, the combination use of phoxim and 1605, and the experimental effect, by contrast, of killing the second generation of bollworms by this invention.

Table 1

Pesticide name		Effect (number of the second generation of bollworms killed)		
		11	11	11
Single use	Cypermethrin	20	20	21
	Phoxim	18	19	18
	1605	18	18	19
combination use of phoxim and 1605		31	32	32
component insecticide		91	94	92

Example 2

Use the same method as example 1; take 1 weight cypermethrin, 3 weight phoxim, 10 weight 1605, 7 weight emulsifier 0221 and 4 weight synergist SV, and add solvent of dimethyl benzene 2 weight, 9 weight, 30 weight, 21 weight, 12 weight in that order. This creates the component insecticide. Add water, 1000 parts to the insecticide, before applying it in the field, and the result is as follows:

Table 2

Pesticide name		Effect (number of killed 3 - stage bollworm)		
Single use	Cypermethrin	18	19	17
	Phoxim	17	17	16
	1605	14	16	15
combination use of phoxim and 1605		27	28	30
component insecticide		90	89	91

Example 3

Use the same method as example 1; take 7 weight cypermethrin, 9 weight phoxim, 25 weight 1605, 15 weight emulsifier 0221 and 10 weight synergist SV, and add solvent of dimethyl benzene 4 weight, 4 weight, 12 weight, 8 weight, 6 weight in that order. Using the method as explained in Example 1, one will have the component insecticide. Add water, 1000 parts to the insecticide, before applying it in the field, and the result is shown below:

Table 3

Pesticide name		Effect (number of killed - stage bollworm)		
Single use	Cypermethrin	22	22	23
	Phoxim	19	20	19
	1605	18	18	19
combination use of phoxim and 1605		33	33	32
component insecticide		94	96	93



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[71]申请人 赵善润

地址 054700河北省威县顺城路10号

[72]发明人 赵善润

[74]专利代理机构 河北省科技专利事务所

代理人 米文智

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[54]发明名称 一种杀虫组合剂

[57]摘要

一种杀虫组合剂。该杀虫组合剂由有效成分氯氰菊酯、辛硫磷和一六〇五及乳化剂与增效剂组成,以二甲苯为溶剂用一定比例和方法配制而成。本杀虫组合剂对害虫具有触杀、胃毒、击倒和薰蒸作用,其有对害虫杀伤作用全面、施毒快的特点,此种杀虫组合剂还避免了害虫抗药性的产生,因而是一种杀虫广谱、高效,对人畜低毒和价廉的新的组合杀虫剂,并且其使用方法简单,兑水1000倍即可大田喷施或拌种,可有效地杀死棉铃虫、红蜘蛛、蓟马、稻虱、钻心虫、青椿象、叶蝉、蚜虫等。

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权 利 要 求 书

1. 一种杀虫组合剂, 其组分包括1-7%的氯氰菊酯, 3~9%的辛硫磷, 10~25%的一六〇五, 7~15%的乳化剂和4~10%的增效剂SV, 其余为溶剂。

2. 根据权利要求1所说的杀虫组合剂中, 乳化剂为 0221、0201、0199中的一种。

说明书

一种杀虫组合剂

本发明属于农药。

农药是杀灭害虫的有效产品,单一的农药长期使用容易使害虫产生抗药性而减弱农药的杀虫作用,甚至单一的农药几乎不起杀虫作用。为了保护农作物不受害虫的侵害,克服害虫的抗药性必须不断地研制出新的农药品种,但是研制一种新的农药投入的财力和物力是巨大的,而且往往是新农药的诞生速度适应不了害虫发生的速度。如果从众多已有的农药中组配成新的广谱高效的农药是利用已有的农药和技术增加新品种的一种生产农药的途径。

本发明的目的是从已有的农药中组配成新的组合剂,并选择适当的乳化剂和增效剂,使新的组合剂成为广谱、高效、低毒和价廉的新的杀虫组合剂。

本发明是这样实现的:一种杀虫组合剂,其组份包括1~7%的氯氟菊酯,3~9%的辛硫磷,10~25%的一六〇五,7~15%的乳化剂和4~10%的增效剂SV,余量为溶剂。上述组合剂中,所说的乳化剂为0221、0201、0199中的一种。

氯氟菊酯是一种胃毒性和触杀性的广谱杀虫剂,对害虫有良好的击倒作用,而且对人畜的毒性低,但是单用氯氟菊酯,害虫容易产生抗药性,使药效迅速下降。

辛硫磷具有杀虫广谱。有光化学击倒性,对人畜具有低毒的特点。

一六〇五是一种胃毒性和具有薰蒸作用的杀虫剂,但一六〇五对人畜的毒性较大。

以上三种农药组合成新的杀虫组合剂,可使各农药的作用相互加强。上述三种农药均有触杀和胃毒性,它们组合后,使其触杀和胃毒能力起到共同加强的作用;此三种农药组合时,可以克服单一农药之不足,氯氟菊酯为菊酯类杀虫剂,辛硫磷和一六〇五杀虫剂为有机磷农药。氯氟菊酯可有效地防止害虫对有机磷的抗药性,有机磷化合物也有有效地防止害虫对氯氟菊酯的抗药性,杀虫组合剂可避免各成份单独使用使害虫产生抗药性;再是以上三种农药单独作用时,各农药对害虫的杀伤能力不全面,而在杀虫组合剂中,各成份仍保持着其本身的杀虫能力,也就是说杀虫组合剂具有辛硫磷农药的光化学击倒性,具有氯氟菊酯的良好击倒性,具有一六〇五农药的薰蒸作用。因而新的杀虫组合剂除增强了对害虫的触杀作用和胃毒作用外,还具有了击倒作用,光化学击倒作用和薰蒸作用。比单一的农药杀虫能力更强,杀伤能力更全面,施毒快,可更有效地毒杀多种害虫。杀虫组合剂具有比单一农药更广谱的杀虫效果。

新的组合剂中,辛硫磷和氯氟菊酯都对哺乳动物的毒性低,只有一六〇五农药对畜有较大的毒性。三种农药组合后的杀虫组合剂比单用一六〇五农药在达到同样的杀虫效力的情况下,组合剂中一六〇五要少得多,所以杀虫组合剂比使用单一的一六〇五农药的毒性大为降低。

由于杀虫组合剂杀虫作用全面,杀虫效率高,因而组合剂中各有效成份的用量大为减少,使整个杀虫组合剂的成本得到降低。

制造本发明的杀虫组合剂的方法为：用溶剂将氯氟菊酯、辛硫磷和一六〇五农药分别溶解，然后将溶有氯氟菊酯、辛硫磷和一六〇五的溶液，按比例进行混合，并加入适当的乳化剂和增效剂进行搅拌均匀，即制造成本发明的杀虫组合剂。

本发明所选用的溶剂为二甲苯，其能够迅速溶解氯氟菊酯、辛硫磷和一六〇五并且闪点较高，使用比较方便和安全。

本发明所选用的乳化剂要（一）分散性好；（二）乳化稳定性好。按以上要求，本发明中的乳化剂选用了如0221、0201、0199（山东宁阳农药厂生产的）。

本发明的杀虫组合剂发挥了各成份之作用的长处，增强了杀虫组合剂的综合杀虫的效力，为使其杀虫能力更加提高，在杀虫组合剂中加入增效剂SV（青岛农药厂生产的琴岛牌的）。

利用氯氟菊酯、辛硫磷、一六〇五三种农药和乳化剂及增效剂，采用前述的制造方法制出了高效广谱低毒和成本低廉的新的杀虫组合剂。本杀虫组合剂再加水稀释1000倍可进行大田喷施或拌种，可有效地杀死棉铃虫、红蜘蛛、蓟马、稻虱、钻心虫、育椿象、叶芽、芽虫等害虫。 以下是本发明的实施例。

实施例1

A：取4份重量的10%氯氟菊酯乳油加入4份重量的二甲苯搅拌均匀待用。

B：取6份重量的50%辛硫磷乳油加入5份重量的二甲苯搅拌均匀待用。

C：取18份重量的50%的一六〇五乳油加入20份重量的二甲苯搅拌均匀待用。

D: 取乳化剂0221计11份重加入增效剂SV7份重, 然后加入二甲苯24份重搅拌均匀待用。

E: 将D乳液加入到A乳液中, 进行搅拌均匀待用。

F: 将B、C两乳液混合搅拌均匀待用。

G: 将E溶液和F溶液进行混合搅拌均匀, 即制成杀虫广谱高效对人畜毒性低、使用方便、价格低廉的杀虫组合剂。

将制得的杀虫组合剂用水稀释1000倍, 进行喷施, 可有效地杀死田间害虫。

表一是①单独作用氯氟菊酯、辛硫磷、一六〇五, ② 辛硫磷与一六〇五合用, ③本发明的杀虫组合剂杀死二代棉铃虫的实验效果对比。

表 一

使用农药名称		效果 (杀死二代棉铃虫只数)		
		①	②	③
单独 使用	氯 氟 菊 酯	20	20	21
	辛 硫 磷	18	19	18
	一 六 〇 五	18	18	19
辛硫磷与一六〇五合用		31	32	32
杀 虫 组 合 剂		91	94	92

实施例2

用同实施例1的方法,取1份重氯氟菊酯3份重辛硫磷, 10份重一六〇五, 7份重乳化剂0221, 4份重增效剂SV, 按次序分别加入溶剂2份重、9份重、30份重、21份重和12份重的二甲苯, 制得的杀虫组合剂再加入1000倍的水喷施, 结果如表2。

表 二

使用农药名称		效果 (杀死二代棉铃虫只数)		
		①	②	③
单独 使用	氯 氟 菊 酯	18	19	17
	辛 硫 磷	17	17	16
	一 六 〇 五	14	16	15
辛硫磷与一六〇五合用		27	28	30
杀 虫 组 合 剂		90	89	91

实施例3

用与实施例1同样的方法,取7份重氯氟菊酯,9份重辛硫磷,25份重一六〇五,15份重乳化剂0221,10份重SV,按次序分别加入溶剂4份重、4份重、12份重、8份重和6份重的二甲苯,按实施例1的制造方法制成杀虫组合剂,兑水1000倍,进行大田喷施实验,效果见表3。

表 三

使用农药名称		效果 (杀死二代棉铃虫只数)		
		①	②	③
单独 使用	氯 氟 菊 酯	22	22	23
	辛 硫 磷	19	20	19
	一 六 〇 五	18	18	19
辛硫磷与一六〇五合用		33	33	32
杀 虫 组 合 剂		94	96	93